

Public Health Service

Research Grants and Fellowships

On the following pages, Public Health Reports publishes the list of new research grants recommended by the National Advisory Councils of the Public Health Service and approved for payment by the Surgeon General. Lists of fellowship awards are also included. Announcements of new grants and fellowships are published after each of the three meetings held annually by the National Advisory Councils. The present listing represents actions of the February 1952 sessions.

This material has been prepared by the Division of Research Grants, National Institutes of Health.

The Public Health Service research grants program is administered by the National Institutes of Health. Its purpose is to provide financial assistance for research in the health sciences to non-Federal institutions and individual scientists. The major objectives are:

1. To expand research activities in universities and other institutions.
2. To stimulate the initiation of research in small colleges where previous research programs have been limited or nonexistent.
3. To encourage investigators to undertake research in neglected fields.
4. To provide training for scientific personnel.

National Advisory Councils

National Advisory Councils, established by law and composed of outstanding citizens skilled in the medical sciences education, and public affairs, examine all applications and recommend appropriate action. The Surgeon General may award grants only when they are recommended by one of the seven councils:

National Advisory Arthritis and Metabolic Diseases Council, National Advisory Cancer Council, National Advisory Dental Research Council, National Advisory Health Council, National Advisory Heart Council, National Advisory Mental Health Council, and National Advisory Neurological Diseases and Blindness Council.

Study Sections

In order that these advisory councils may have the benefit of the best scientific advice on applications for research grants, outstanding authorities in each of the major fields of research have been appointed as members of special study sections. Appointments are made to provide for rotation of membership. The majority of these special consultants are nongovernmental scientists selected by the Surgeon General on a nation-wide basis.

These study sections have accepted the responsibility (1) for reviewing applications for research grants in their respective fields, and forwarding their recommendations for approval, modification, further study, or disapproval to the appropriate National Advisory Council; and (2) for surveying, as scientific leaders, the status of research in their fields in order to determine areas in which research activities should be expanded. Study sections meet prior to the regularly scheduled meetings of the National Advisory Councils.

The applicant describes the research which he plans to do and provides information as to his training, experience, accomplishments, his work situation, and the facilities available. These factors are considered in detail with care by the study sections. Since there is never sufficient money to grant all worth-while re-

quests, it is necessary to provide a mechanism whereby requests compete on the basis of merit. The study sections and councils prepare a merit roll and the Surgeon General makes grants as far down the list as funds permit.

In order to insure scientific freedom and thereby promote the highest quality of research in both fundamental and applied fields, the investigators are not required to follow their original proposal but rather are free to pursue the research in whatever manner they wish and to publish their findings without clearance with the Government.

The Scope of Grants

In earlier years when the major causes of death were infectious diseases and the civilized world was continuously afflicted with severe epidemics and a very high infant mortality rate, scientists gave their attention primarily to these matters. As a result of their efforts, effective means for treating and preventing many of these diseases were discovered. General sanitation and nutrition improved and people began to live longer.

During the past few years there has developed among health agencies, physicians, and scientists an increasing preoccupation with chronic diseases of middle and old age. These diseases have increased as causes of death and disability largely as a direct consequence of the increased average life span of man. In order to keep pace with this changing emphasis of research, Congress has created in the Public Health Service's National Institutes of Health a series of new institutes concerned primarily with research in diseases such as cancer, arthritis, arteriosclerosis, and blindness.

It has not been the intention of Congress or the Public Health Service to decrease research efforts in fields such as infectious diseases but rather to maintain them at full vigor while stimulating additional research in the newer fields. The National Microbiological Institute and the Division of Research Grants have, therefore, continued to provide research support in the field of infectious disease and general medical research.

It was recognized that this expansion of re-

search effort could not be accomplished without expanding the research potential of the country. Research grants have made it possible for well-trained investigators to obtain additional assistants and equipment so that they could work at maximum efficiency. This has resulted in the training of many new investigators.

Research Fellowships

In addition, the Public Health Service conducts a research fellowship program to provide financial assistance to the most able and promising students and scholars during their training period so that they can enter a career of research in medical and allied fields. These fellowships are awarded on a competitive basis upon the recommendation of Institute specialty boards and committees of scientists at the National Institutes of Health. Annual stipends range from \$1,600 up. Scientists anywhere in the world are eligible to compete. American citizens may receive training under these fellowships at any recognized institution in the world. A small number of fellowships have been awarded to foreign students for training in the United States.

Six Years of Grants

It is gratifying to note some of the developments during the first 6 years of the expanded grant program.

The volume of research has increased substantially. This increase has not been restricted to large institutions with well-established research programs. To be sure, such institutions have made a great contribution to this increased effort but in addition—and perhaps of greater consequence in the long view—sound, substantial research programs have developed in other institutions widely distributed geographically and where little or no research existed before.

The availability of Federal funds has not diminished the degree of non-Federal support. In the period from 1946 to 1951, while Federal support was increasing twentyfold, there was a simultaneous fivefold increase of funds from private sources. Federal recognition of local ability has often provided a stimulus for increased local support.

Public Health Service Research Grants

Approved Following the February Meetings of the Advisory Councils

The subject matter of the individual studies listed here is necessarily described in abbreviated form. The descriptive titles serve only to identify the general field in which the investigator will work.

The list includes 176 new grants to 206 investigators in 100 institutions, located in 34 States including the District of Columbia, and 3 foreign countries. These grants are in support of research in a wide variety of scientific subjects and fields.

Requests for application blanks or for further information concerning the research grant and fellowship programs should be addressed to the Division of Research Grants, National Institutes of Health, Public Health Service, Bethesda 14, Md.

ALABAMA

Tuskegee

Cason, L. F., and Ford, C. M. **Tuskegee Institute.** Antibiotic properties of aryl ketones, etc.
NMI—\$7,344

Henderson, J. H. **Tuskegee Institute.** Nutritional factors in cultures of plant tissues.
NCI—\$3,277

Neal, E. E. **Tuskegee Institute.** Development of health practices in rural South.
NIH—\$20,000

CALIFORNIA

Berkeley

Hogan, M. J. **University of California.** Action of certain enzymes on eye structures.
NINDB—\$9,109

Los Angeles

Duel, H. J., Jr., Marx, W., and Slater, A. R. **University of Southern California.** Studies of cholesterol metabolism.
NHI—\$20,000

Griffith, W. H. **University of California.** Beta-amino-isobutyric acid in malignant states.
NCI—\$10,000

McVickar, D. L. **University of California.** Specific serologic tests for human fungal diseases.
NMI—\$10,292

Rittenberg, S. **University of Southern California.** Biosynthesis of nucleic acid using antagonists.
NMI—\$3,996

Salisbury, P. F. **Cedars of Lebanon Hospital.** Experimental heart failure by arterial constriction.
NHI—\$4,320

Sturgeon, P. **Children's Hospital Society.** Blood dyscrasias of children.
NIAMD—\$6,696

Santa Barbara

Bischoff, F. **Santa Barbara Cottage Hospital.** Relation of estro-nase to cancer.
NCI—\$11,988

Stanford

Finley, K. H. **Stanford University.** Isotope studies on the central nervous system.
NINDB—\$14,450

Luetscher, J. A. **Stanford University.** Humoral control of circulatory function in edema.
NIAMD—\$14,536

Luft, J. **Stanford University.** Self control patterns within families.
NIMH—\$8,542

Raffel, S. **Stanford University.** Infections and contact hypersensitivities.
NIH—\$6,977

Schultz, E. W. **Stanford University.** "Common cold."
NMI—\$0,720

The source of funds for each grant is indicated by initial letters following each entry. The key to these abbreviations is as follows:

NCI----- National Cancer Institute.
NHI----- National Heart Institute.
NIAMD----- National Institute of Arthritis and Metabolic Diseases.
NIDR----- National Institute of Dental Research.
NIMH----- National Institute of Mental Health.
NINDB----- National Institute of Neurological Diseases and Blindness.
NIH----- National Institutes of Health.
NMI----- National Microbiological Institute.

CONNECTICUT

Storrs

Boettiger, E. G. University of Connecticut. A study of unique neurological mechanisms.

NINDB—\$2,792

DISTRICT OF COLUMBIA

Washington

Leese, C. E., and Bacchus, H. George Washington University. Relation of adrenal and kidney in hypertension.

NHI—\$5,000

McKinney, R. L. Howard University. Intercellular fibers in tissue cultures of cancer cells.

NCI—\$10,000

Parr, L. W., and Robbins, M. L. George Washington University. Antagonistic activity of enterobacteriaceae.

NMI—\$4,127

FLORIDA

Coral Gables

Leigh, W. H. University of Miami. Study of trematode cercariae of Florida mollusca.

NMI—\$1,971

Miami

Hopman, B. C. Medical Research Foundation of Dade County. Study of cytochemical techniques in uterine carcinoma.

NCI—\$10,854

Tallahassee

Frieden, E., and Walborsky, H. M. Florida State University. Derivatives of phenols with thyroxine-like activity.

NIAMD—\$5,000

GEORGIA

Athens

Duncan, W. H. University of Georgia. Toxicity of vascular plants.

NIH—\$19,422

Atlanta

Bondy, P. K. Emory University. Effect of growth hormone on carbohydrate metabolism.

NIAMD—\$7,333

New grants and awards by Institute, approved by the Surgeon General, Public Health Service, following recommendations of reviewing consultants in February 1952

| Institute | Research grants | | Fellowship awards | |
|---|------------------|-----------------------------|-------------------|-----------------------------|
| | Number of grants | Amount approved for payment | Number of awards | Amount approved for payment |
| Total----- | 176 | \$1, 831, 563 | 97 | \$254, 500 |
| Noncategorical: ¹ Division of Research Grants | 45 | 463, 798 | 24 | 54, 600 |
| Categorical: National Institute of Arthritis and Metabolic Diseases----- | 33 | 352, 016 | 1 | 2, 000 |
| National Institute of Neurological Diseases and Blindness----- | 10 | 124, 825 | 3 | 8, 800 |
| National Cancer Institute----- | 29 | 317, 950 | 22 | 52, 300 |
| National Institute of Dental Research----- | 3 | 14, 369 | ----- | ----- |
| National Microbiological Institute----- | 28 | 207, 659 | 16 | 33, 800 |
| National Heart Institute----- | 20 | 191, 082 | 24 | 80, 000 |
| National Institute of Mental Health----- | 8 | 159, 864 | 7 | 23, 000 |

¹ "Noncategorical" research does not fall specifically within the scope of interest of any categorical institute but is presented by the Division of Research Grants, along with study section technical advice, directly to the National Advisory Health Council for consideration.

Haldi, J. Emory University. Calcium and phosphorus metabolism and experimental dental caries.

NIDR—\$5,638

Martin, J. D., Jr. Emory University. Use of ACTH in burns.

NIH—\$8,100

Schroder, S. Emory University. Excretion of gall-bladder contrast media.

NIAMD—\$4,698

Experiment

Speirs, M. Georgia Experiment Station. Seasonal effects of children's diets.

NIH—\$2,500

ILLINOIS

Chicago

Baker, R. University of Chicago. Investigation of renal antigenicity.

NIH—\$5,454

Elias, M. H. Chicago Medical School. Structure of human adrenal cortex.

NHI—\$4,320

Furuta, W. J., and Kirschbaum, A. University of Illinois. Electronmicroscopic study of the glomerulus.

NIH—\$6,048

Geiling, E. M. K. University of Chicago. Metabolism of radioactive colchicine in experimental animals.

NCI—\$5,562

Huggins, C. Individual. Synthesis of ring labeled radioactive cortisone.

NIAMD—\$66,000

Jones, R. J. University of Chicago. Serum lipids in atherosclerosis and hormonal disorders.

NHI—\$14,450

Rostenberg, A. University of Illinois. Desensitization of skin-sensitivity.

NIH—\$6,220

Sherrod, T. University of Illinois. Renal hemodynamics as influenced by drugs.

NIH—\$11,734

Evanson

Balamuth, W. Northwestern University. Comparative studies on intestinal amoeba.
NMI—\$6,804

Kirchheimer, W. Northwestern University. Arithmetic linear growth of mycobacteria.
NMI—\$5,400

Lein, A. Northwestern University. Transport, assimilation, regulating role of thyroxin.
NIH—\$7,884

IOWA

Iowa City

Cullen, S. C., Gross, E. G., and Featherstone, R. State University of Iowa. Distribution of zenon in central nervous tissue.
NIH—\$7,342

Fisher, A. K. State University of Iowa. Cellular respiration in dental tissues.
NIDR—\$6,852

Ponseti, I. V. State University of Iowa. A study of experimental dietary scoliosis.
NIAMD—\$11,124

KANSAS

Kansas City

Bolinger, R. E. University of Kansas. Carbohydrate metabolism in liver disease.
NIAMD—\$9,990

Dimond, E. G. University of Kansas. Transmission of EKG via telephone lines.
NHI—\$5,800

Grady, H. J. University of Kansas. Investigation of pregnanediol metabolism.
NIH—\$7,668

KENTUCKY

Louisville

Beard, M. F. University of Louisville. Absorption and excretion of vitamin B-12.
NIAMD—\$18,347

Rehm, W. S. University of Louisville. Electrophysiological studies of the stomach.
NIH—\$8,364

LOUISIANA

Baton Rouge

Elliott, H. B. Department of Agriculture and Immigration Live-stock Sanitary Board. Serological survey of Louisiana Q-fever incidence.
NMI—\$7,781

Kehr, A. E. Louisiana State University. Nature and cause of genetic tumors in plants.
NCI—\$3,632

MAINE

Bar Harbor

Scott, J. P. R. B. Jackson Memorial Laboratory. Effect of age and strain on early behavior patterns.
NIMH—\$6,966

MARYLAND

Baltimore

Davis, D. E. Johns Hopkins University. A study of fox population for rabies control.
NMI—\$7,884

Frank, J. D. Johns Hopkins University. Evaluation of group and individual psychotherapy.
NIMH—\$39,277

Morgan, R. H. Johns Hopkins University. Cinefluorographic study of heart disease.
NHI—\$14,108

Roberts, Dean W. Commission on Chronic Illness. Study of chronic illness prevalence and needs for care.
NIH—\$55,000

MASSACHUSETTS

Amherst

Woodside, G. L. University of Massachusetts. Chemotherapeutic studies on cancer in mice.
NCI—\$8,425

Boston

Adams, R. D. Massachusetts General Hospital. Immunology in encephalomyelitis and multiple sclerosis.
NINDB—\$43,600

Astwood, E. B. New England Medical Center. Pituitary hormones.
NIH—\$18,360

Balazs, E. A. Massachusetts Eye and Ear Infirmary. Role of acid mucopolysaccharides in tissue growth.
NCI—\$9,720

Beecher, H. K. Massachusetts General Hospital. Circulatory effects of curare and other drugs.
NHI—\$12,703

Brugsch, H. G. Boston Dispensary. Long term use of ACTH in rheumatoid arthritis.
NIAMD—\$3,391

Diamond, L. K. Children's Medical Center. Blood group antibodies in human subjects.
NIH—\$13,608

Etsten, B. New England Medical Center. Assisted expiration in anesthesia.
NIH—\$6,912

Geren, B. B. Children's Medical Center. The structure of the neuron.
NINDB—\$6,156

Gergely, J. Massachusetts General Hospital. Biochemical studies on cardiac and skeletal muscle.
NHI—\$8,100

Goldstein, A. Harvard University. Function of plasma-type cholinesterase.
NIH—\$6,381

Jeanloz, R. W. Massachusetts General Hospital. Synthesis of glucosamine and chondrosamine derivatives.
NIAMD—\$7,751

Lemon, H. M. Boston University. Analytical method for 11-ketosteroid in urine of cancer patients.
NCI—\$7,000

Miller, H. H. New England Medical Center. Perfusion of isolated and in situ organs.
NIH—\$10,000

Miller, Z. B. Children's Medical Center. Mechanism of action of carcinolytic agents.
NCI—\$13,284

Naterman, H. L. Beth Israel Hospital. Studies on injected protein antigens.
NIH—\$4,968

Stefanini, M., and Dameshek, W. New England Medical Center. Platelet studies in thrombocytopenic purpura.

NIH—\$10,044

Stone, W., Jr. Massachusetts General Hospital. Study of plastic artificial corneas.

NINDB—\$4,200

Vanderlaan, W. New England Medical Center. Factors which influence thyroid function.

NIAMD—\$5,400

Cambridge

Castle, W. B. Harvard University. Destruction of red cells in hemolytic anemias.

NIH—\$8,480

Eaton, M. D. Harvard University. Rous sarcoma virus and cell proliferation.

NCI—\$7,350

Emerson, K., Jr. Harvard University. Serum phospholipid in hyperlipemic states.

NIAMD—\$6,314

Fieser, L. F. Harvard University. Sterols and steroid hormones.

NCI—\$19,184

Freedberg, A. S., and Hamolsky, M. W. Harvard University. Thyroid hormonal metabolic pool in man.

NIAMD—\$10,708

Ipsen, J., and Mueller, J. H. Harvard University. Behavior of coccidioides in tissue culture.

NMI—\$20,000

Janeway, C. A. Harvard University. Immunology and sterilization of blood derivatives.

NHI—\$14,358

Medford

Bernfeld, P. Tufts College. Micro-electrophoretic study of mice plasma proteins.

NCI—\$6,008

Worcester

Cranswick, E. H. Clark University. Thyrotropic responsivity in schizophrenia.

NIMH—\$8,705

Kegeles, G. Clark University. Sedimentation and diffusion of small molecules.

NIH—\$24,082

MICHIGAN

Ann Arbor

Aberle, D. F. University of Michigan. Peyote use among the Navajo Indians.

NIMH—\$6,217

Baker, B. L. University of Michigan. ACTH and the histology of the digestive tract.

NIAMD—\$9,423

Bordin, E. S., Dittmann, A. T., and Rausch, H. L. University of Michigan. Analyses of psychotherapeutic interaction.

NIMH—\$19,990

Detroit

Gerheim, E. B. University of Detroit. Studies of blood group specific substances.

NHI—\$4,203

Maddock, W. O. Wayne University. Urinary estrogens in man.

NIAMD—\$7,020

MINNESOTA

Minneapolis

Bloch, H. S., and Kreman, A. J. University of Minnesota. Physiological significance of gastric urease.

NIH—\$6,309

Lifson, N. University of Minnesota. Metabolism in perfused mammalian skeletal muscle.

NIH—\$7,236

MISSOURI

Kirksville

Korr, I. M., and Corson, S. A. Kirksville College. Renal reflex patterns and pathways.

NIH—\$9,590

St. Louis

Germuth, F. Washington University. Studies on experimental hypersensitivity.

NIH—\$12,900

Kamen, M. D. Washington University. Metabolism of photosynthetic bacteria.

NMI—\$7,279

Luyet, B. J. St. Louis University. Preservation of life in frozen cells with glycerol.

NIH—\$6,120

Mercer, F. L. St. Louis College of Pharmacy and Allied Sciences. Inhibition of tobacco mosaic virus synthesis by analogs.

NMI—\$3,850

Schoepfle, G. M. Washington University. Studies in impulse conduction.

NINDB—\$6,696

NEBRASKA

Lincoln

Dunn, F. L., and Bahm, W. E. Jr. University of Nebraska. Frequency, timing, and transmission of heart murmurs.

NHI—\$8,208

Omaha

Gillick, F., and Egan, R. L. Creighton University. Electrokymographic study of ventricular motion.

NHI—\$12,906

NEW YORK

Albany

Frawley, T. F. Albany Medical College. Chemistry of saliva related to adrenal cortical hormones.

NIAMD—\$8,128

Robb, J. S. Research Foundation of State University of New York. Studies of specialized heart tissue.

NHI—\$5,000

Brooklyn

Pincus, J. B., and Gittleman, I. F. Jewish Hospital of Brooklyn. Effect of human and cow milk on newborn infants.

NIAMD—\$6,000

Volk, B. W., and Lazarus, S. S. Jewish Sanitarium and Hospital for Chronic Diseases. Mechanism for hypoglycemia responsiveness.

NIAMD—\$5,000

Buffalo

Griffith, F. R., and Hubbard, R. S. University of Buffalo. Role of sympathetic nerves of kidney in hypertension.

NHI—\$3,841

Lowe, C. U. University of Buffalo. Effect of cortisone on liver nucleic acid metabolism.

NCI—\$9,864

Ithaca

Holley, R. W. Cornell University. New methods of peptide synthesis and degradation.
NIH—\$5,000

New York

Bender, M. B. Mt. Sinai Hospital. Effect of cerebral lesions on visual perception.
NINDB—\$19,440

Benham, R. W. Columbia University. Nutritional demands of pathogenic fungi.
NMI—\$5,130

Bodansky, O., and Randall, H. T. Sloan-Kettering Institute, Memorial Center for Cancer and Allied Diseases. Intercellular phase in patients with cancer.
NCI—\$18,000

Buxton, C. L. Columbia University. Cervical bacteriology and human sterility.
NMI—\$19,440

Edwards, G. P. New York University. Effect of detergents on activated sludge.
NIH—\$5,238

Fishman, A. P. Mt. Sinai Hospital. Studies on normal and pathological pregnancies.
NHI—\$13,381

Glass, G. B. New York Medical College. Vitamin B-12 in anemia after gastrectomy.
NIAMD—\$15,120

Leiter, L. Montefiore Hospital. Malnutrition in prolonged illness.
NIAMD—\$20,000

Luckey, E. H., and Knight, J. V. Cornell University. Fluid and electrolyte balance in acute infections.
NMI—\$12,020

Mendlowitz, M. Mt. Sinai Hospital. Effect of drugs on neurogenic vascular resistance.
NHI—\$8,100

Rennie, T. A. C. Cornell University. Yorkville community mental health project.
NIMH—\$32,886

Riker, W. F. Cornell University. Anti-fibrillatory effect of curare.
NIH—\$11,610

Seegal, D. Columbia University. Metabolic abnormalities resulting from rice diets.
NIAMD—\$8,100

Spain, D. M. Waldemar Medical Research Foundation. Effect of cortisone on acute inflammatory processes.
NCI—\$7,030

Smith, H. W. New York University. Cardiovascular - renal physiology and disease.
NHI—\$20,674

Taylor, H. C., Jr., and Plentl, A. A. Columbia University. Tracer studies on placental and uterine blood flow.
NIH—\$10,638

Rochester

Holler, J. W. Highland Hospital. Effect of epinephrine on serum potassium and adrenal cortex.
NIAMD—\$3,942

Lambooy, J. P. University of Rochester. Inhibition of rat carcinoma by diethyl riboflavin.
NCI—\$3,872

NORTH CAROLINA

Chapel Hill

Jenner, C. University of North Carolina. Action spectrum for animal photoperiodic response.
NMI—\$5,395

Thurstone, L. L., and Thurstone, T. G. University of North Carolina. Studies of primary mental abilities.
NIMH—\$37,281

Durham

Engel, F. L., and Meyers, J. D. Duke University. Effects of hormones and metabolic factors on certain liver functions.
NIAMD—\$10,000

Kerby, G. P. Duke University. Pyrogen disappearance from blood stream.
NIH—\$3,780

Martin, S. P. Duke University. Effect of bacterial products on human leukocytes.
NIH—\$7,479

Shingleton, W. Duke University. Modification of resistance in sphincter of Oddi.
NIAMD—\$3,240

Raleigh

Smallwood, C. North Carolina State College. Adsorption capacity of activated sludge.
NIH—\$9,039

NORTH DAKOTA

Fargo

Chernick, S. North Dakota Agricultural College. Control of pancreatic enzyme formation.
NIAMD—\$7,000

OHIO

Cincinnati

Glueck, H. I. May Institute for Medical Research of the Jewish Hospital Association. Natural clotting factors with ninhydrin.
NIH—\$4,860

Sherry, S. May Institute for Medical Research of the Jewish Hospital Association. Biochemical studies of fibrous tissue inflammation.
NIH—\$9,612

Cleveland

Herndon, C. H. Western Reserve University. Transplantation of whole joints.
NIAMD—\$10,000

Hirschmann, H. Western Reserve University. Chemistry and metabolism of adrenal steroids.
NCI—\$5,994

Latta, H. Western Reserve University. Interaction of soluble proteins and tissue cells.
NIH—\$9,930

Weisberger, A. Western Reserve University. Role of cysteine compounds in leukopoiesis.
NCI—\$5,934

Columbus

Cole, C. R. Ohio State University. Toxoplasmosis in domestic animals and in man.
NMI—\$5,650

Ferguson, L. C., and Bohl, E. H. Ohio State University. Epidemiologic studies of leptospiroses.
NMI—\$5,400

Von Haam, E. Ohio State University. Biologic testing of carcinogenic hydrocarbons.
NCI—\$6,222

OKLAHOMA

Oklahoma City

Reifenstein, E., and Howard, R. P. Oklahoma Medical Research Institute and Hospital. Atrophy of bone resulting from disuse.
NIAMD—\$19,602

Tulsa

Stowell, A. Springer Clinic. Localization of tactile and auditory areas.
NINDB—\$8,294

OREGON

Corvallis

Cheldelin, V. H. Oregon State College. Metabolism of acetic acid bacteria.
NMI—\$6,250

Portland

Harris, J. E. University of Oregon. Studies on aqueous humor and plastic corneas.
NINDB—\$10,288

PENNSYLVANIA

Philadelphia

Aptekman, P. M. Wistar Institute of Anatomy and Biology. Tumor immunity studies in inbred rats.
NCI—\$7,948

Delamater, E. D. University of Pennsylvania. Biology of spirochetes and spirochetoses.
NMI—\$9,813

Hausberger, F. X. Jefferson Medical College. Synthesis of fat from carbohydrates.
NIAMD—\$6,652

Hauschka, T. Institute for Cancer Research and Lankenau Hospital Research Institute. Chromosomal differences of cells in ascites tumors.
NCI—\$5,393

Israel, H. L. University of Pennsylvania. Epidemiological-immunological study of sarcoidosis.
NMI—\$3,493

Lurie, M. B. University of Pennsylvania. Genetic factors in resistance to tuberculosis.
NMI—\$4,644

Sano, M. Woman's Medical College of Pennsylvania. Tissue cultures of pleural effusions.
NIH—\$4,860

Smith, N. J. St. Christopher's Hospital for Children. Hematological aspects of iron metabolism in infancy.
NIAMD—\$6,900

Pittsburgh

Leung, S. W. University of Pittsburgh. CO₂ effect on solubility of oral calculus.
NIDR—\$1,879

SOUTH CAROLINA

Columbia

Riley, E. E. Benedict College. Protein deficient diets and kidney function.
NHI—\$3,780

SOUTH DAKOTA

Vermillion

Cox, C. D. University of South Dakota. Micro-detection of antigenic substances.
NMI—\$3,900

TENNESSEE

Nashville

Darby, W. J., and Woodruff, C. W. Vanderbilt University. Deficiency of pteroylglutamates and ascorbic acid.
NIAMD—\$16,173

TEXAS

Galveston

Rigdon, R. H. University of Texas. Production of tumors with methylcholanthrene.
NCI—\$5,508

Houston

Rose, J. M. Baylor University. Immunologic studies in Hodgkin's disease.
NCI—\$11,000

Turner, R. B. Rice Institute. Structure of ouabagenin.
NHI—\$7,830

San Antonio

McKinney, R. E. Southwest Foundation for Research and Education. Bacterial flocculation in aerobic waste treatment.
NMI—\$11,232

Waco

Bond, T. J. Baylor University. Carcinogens and metabolism of micro-organisms.
NCI—\$1,512

UTAH

Salt Lake City

Gebhardt, L. P. University of Utah. Hemagglutination test for yellow fever virus.
NIAMD—\$8,638

Leymaster, G. R. University of Utah. Study of metabolism of selenium and tellurium.
NIH—\$6,966

VERMONT

Burlington

Schein, A. H. University of Vermont. Purification of purine enzymes.
NIAMD—\$4,428

WASHINGTON

Pullman

Drake, C. H. Washington State College. Immunization for sporotrichosis and nocardiosis.
NMI—\$2,646

Seattle

Cantril, S. T. Swedish Hospital. Therapeutic effectiveness of 2 mev X-rays in cancer.
NCI—\$88,341

Everett, N. B. University of Washington. Localization and metabolism of labeled hormones.
NCI—\$6,048

Harkins, H. N. University of Washington. Evaluation of the Billroth I operation.
NIH—\$3,990

Roman, H. University of Washington. Production of exceptional asci in saccharomyces.
NMI—\$7,560

WEST VIRGINIA*Morgantown*

Marsh, D. F. University of West Virginia. Mannich bases and their quaternary salts. NIH—\$4,696

WISCONSIN*Madison*

Meyer, R. K., and Emlen, J. T., Jr. University of Wisconsin. Stress and survival in natural populations. NIH—\$8,397

ARGENTINA*Buenos Aires*

Leloir, L. F. Campomar Fundacion Instituto de Investigaciones. Enzymes and coenzymes acting on hexosephosphates. NIH—\$10,000

CANADA*Montreal*

Rose, B. McGill University. Hypersensitivity and protein metabolism. NIH—\$25,000

Venning, E. H. McGill University. Urinary excretion of conjugated corticoids.

NIAMD—\$8,000

INDIA*Bombay*

Khanolkar, V. R. Indian Cancer Research Centre. Testing of Indian tobaccos for carcinogenicity.

NCI—\$9,000

Public Health Service Research Fellowship Awards

During the February meetings of the Institute specialty boards, 97 new fellowship awards were approved totaling \$254,500. Also approved, but not listed here, were 53 continuation awards totaling \$143,908. Annual stipends range from \$1,600 up.

Types of fellowships are identified immediately after each name:

(PB) predoctorate, bachelor. (PD) postdoctorate.
(PM) predoctorate, master. (SP) special.

ALABAMA*Auburn*

Konde, W. (PD) Alabama Polytechnic Institute. Department of Animal Husbandry and Nutrition. NCI

Birmingham

Walker, R. P. (PD) Medical College of Alabama. Department of Medicine. NHI

CALIFORNIA*Berkeley*

Ogasawara, F. X. (PB) University of California. Department of Poultry Husbandry. NIH

Smith, K. C. (PD) University of California. Department of Biochemistry. NCI

Los Angeles

Bruice, T. C. (PM) University of Southern California. Department of Biochemistry and Chemistry. NIH

Heim, W. G. (PM) University of California. Department of Zoology. NCI

Jorgensen, E. C. (PM) University of California. Department of Chemistry. NIH

Yuhl, E. T. (PD) University of California. Department of Anatomy. NINDB

Pasadena

Gershowitz, H. (PM) California Institute of Technology. Kerckhoff Laboratory of Biology. NCI

COLORADO*Denver*

McCord, M. C. (PD) University of Colorado. Department of Medicine. NHI

Sherwood, C. (PM) University of Colorado. Department of Anatomy. NINDB

CONNECTICUT*New Haven*

Davis, M. (PM) Yale University. Department of Biophysics. NCI

Kessen, W. H. (PD) Yale University. Institute of Human Relations. NIMH

Lipsky, S. R. (PD) Yale University. Department of Internal Medicine. NHI

St. Lawrence, P. (PD) Yale University. Department of Botany. NMI

Woese, C. R. (PM) Yale University. Department of Biophysics. NMI

DISTRICT OF COLUMBIA*Washington*

Fearn, J. E. (PM) Catholic University. Department of Chemistry. NIH

ILLINOIS*Chicago*

Aserinsky, E. (PM) University of Chicago. Department of Physiology. NIMH

Berenson, G. S. (PD) University of Chicago. Department of Pediatrics. NHI

Dillon, R. F. (PD) Hektoen Institute for Medical Research. Cardiology Laboratory. NHI

Urbana

Campbell, A. McC. (PM) University of Illinois. Department of Bacteriology. NMI

Hughins, E. J. (PM) University of Illinois. Department of Zoology. NMI

Zahler, S. A. (PD) University of Illinois. Department of Bacteriology. NMI

INDIANA

Lafayette

Mallett, G. E. (PM) Purdue University. Department of Biological Sciences. NMI

Parlett, R. C. (PM) Purdue University. Department of Biological Sciences. NCI

South Bend

Boyle, R. J. (PM) Notre Dame University. Department of Chemistry. NCI

Loffelman, F. F. (PM) Notre Dame University. Department of Chemistry. NMI

IOWA

Iowa City

Tremaine, M. M. (PM) The State University of Iowa. Department of Bacteriology. NMI

KANSAS

Lawrence

Eberle, B. T. (PD) University of Kansas. Department of Physiology. NHI

Pryor, C. W. (PM) University of Kansas. Department of Zoology. NMI

KENTUCKY

Louisville

Loudermill, P. (PB) University of Louisville. Department of Anatomy. NHI

MARYLAND

Baltimore

Brahen, L. S. (PM) University of Maryland. Department of Pharmacology. NHI

The source of funds for each grant is indicated by initial letters following each entry. The key to these abbreviations is as follows:

NCI..... National Cancer Institute.
NHI..... National Heart Institute.
NIAMD..... National Institute of Arthritis and Metabolic Diseases.
NIDR..... National Institute of Dental Research.
NIMH..... National Institute of Mental Health.
NINDB..... National Institute of Neurological Diseases and Blindness.
NIH..... National Institutes of Health.
NMI..... National Microbiological Institute.

Haley, A. J. (PM) Johns Hopkins University. Department of Parasitology. NMI

Husson, G. S. (PD) Johns Hopkins University. Department of Environmental Medicine and Surgery. NHI

Jackson, D. P. (PD) Johns Hopkins University. Department of Medicine. NHI

Praglin, J. (PD) Johns Hopkins University. Department of Biophysics. NINDB

Wallis, R. C. (PM) Johns Hopkins University. Department of Parasitology. NMI

Wolff, J. B. (PM) Johns Hopkins University. Department of Biology. NIH

MASSACHUSETTS

Boston

Ames, A., III. (PD) Harvard University. Department of Biochemistry. NIMH

Bernard, G. R., Jr. (PM) Boston University. Department of Biology. NMI

Bluhm, A. L. (PM) Boston University. Department of Chemistry. NCI

Brooks, L. (PD) Harvard University. Department of Surgery. NHI

Bucklin, D. H. (PD) Harvard University. Department of Biology. NIH

Dalton, J. C. (PD) Harvard University. Department of Medicine. NHI

Epstein, S. I. (PM) Harvard University. Department of Chemistry. NMI

Friedman, I. H. (PD) Boston University. Department of Clinical Research. NIH

Goldschmidt, E. N. (PM) Harvard University. Department of Chemistry. NIH

Granstrom, M. L. (PM) Harvard University. Department of Sanitary Engineering. NIH

Guild, W. R. (PD) Harvard University. Department of Medicine. NHI

Ketchum, W. F. (PD) Harvard University. Department of Biological Chemistry. NCI

Lear, A. A. (PD) Harvard University. Thorndike Memorial Laboratory. NHI

Levine, S. G. (PM) Harvard University. Department of Chemistry. NIH

Rabinowitz, M. (PD) Harvard University. Department of Medicine. NHI

Rosenblum, M. (PM) Harvard University. Department of Chemistry. NIH

Ross, R. S. (PD) Harvard University. Department of Physiology. NHI

Rutenburg, S. H. (PD) Harvard University. Department of Surgical Research. NCI

Stone, R. W. (PD) Boston University. Department of Clinical Research. NHI

Thompson, T. E. (PM) Harvard University. Physical Chemistry Laboratory. NIH

Cambridge

Rothstein, F. (PM) Massachusetts Institute of Technology. Department of Biology. NIH

MICHIGAN

Detroit

Nussebaum, A. L. (PM) Wayne University. Department of Chemistry. NIH

MINNESOTA

Minneapolis

Miroff, G. (PM) University of Minnesota. Department of Physiology. NCI

MISSOURI

St. Louis

Chernoff, A. I. (SP) Washington University. Department of Internal Medicine. NCI

Kempinsky, W. H. (PD) Washington University. Department of Neuropsychiatry. NINDB

Smith, K. (PD) Washington University. Department of Neuropsychiatry. NIMH

Weiss, J. M. (PD) Washington University. Department of Anatomy. NIH

NEW YORK

Brooklyn

Parris, C. L. (PM) Polytechnic Institute of Brooklyn. Department of Chemistry. NIAMD

Ithaca

Dayton, Z. D. (PM) Cornell University. Department of Plant Breeding. NCI

Woodward, V. W. (PM) Cornell University. Department of Plant Breeding. NMI

New York

Baum, G. (PD) New York University. Department of Ophthalmology. NIMH

Cluff, L. E. (PD) Rockefeller Institute for Medical Research. Rheumatic Fever Department. NMI

Dickason, M. E. (PD) Columbia University. Department of Pharmacology. NIH

Kanter, D. M. (PD) Columbia University. Department of Medicine. NHI

Kirby, K. (PD) Columbia University. Department of Neuropathology. NCI

Melnitsky, I. (PD) Sloan-Kettering Institute, Memorial Center for Cancer and Allied Diseases. Physics Department. NIH

Strange, L. F. (PD) Columbia University. Department of Neuropathology. NCI

NORTH CAROLINA

Durham

Golden, J. B. (PD) Duke University. Department of Surgery. NHI

OHIO

Cleveland

Hurwitz, J. (PM) Western Reserve University. Department of Biochemistry. NIH

Moir, T. W. (PD) Western Reserve University. Department of Medicine. NHI

Rose, I. A. (PD) Western Reserve University. Department of Medicine. NCI

PENNSYLVANIA

Bryn Mawr

White, J. F. (PM) Bryn Mawr College. Department of Biology. NCI

Philadelphia

Goldstein, L. (PM) University of Pennsylvania. Department of Zoology. NCI

Kern, H. M., Jr. (PD) University of Pennsylvania. Department of Anatomy. NIMH

Ludwig, G. D. (PD) University of Pennsylvania. Department of Medical Physics. NIH

Novack, P. (PD) Hahnemann Medical College. Department of Research. NHI

Pittsburgh

Matthews, J. S. (PM) University of Pittsburgh. Department of Chemistry. NIH

State College

Pioch, R. P. (PD) Pennsylvania State College. Department of Chemistry. NIH

UTAH

Provo

Bradshaw, W. H. (PB) Brigham Young University. Department of Bacteriology. NCI

Salt Lake City

Spackman, D. H. (PM) University of Utah. Department of Biochemistry. NCI

TENNESSEE

Memphis

DiLuzio, N. R. (PM) University of Tennessee. Department of Physiology. NIH

VIRGINIA

Blacksburg

Schneider, R. E. (PM) Virginia Polytechnic Institute. Department of Statistics. NCI

Charlottesville

Darby, R. A. (PB) University of Virginia. Department of Chemistry. NIH

WASHINGTON

Seattle

Elgee, N. J. (PD) University of Washington. Department of Medicine. NHI

WISCONSIN

Madison

Growth, D. P. (PM) University of Wisconsin. Department of Oncology. NCI

Rutter, W. J. (PD) University of Wisconsin. Institute for Enzyme Research. NIH

CANADA

Montreal

Mitchell, M. L. (PD) University of Montreal. Department of Experimental Medicine. NHI

SWEDEN

Stockholm

Lewis, U., Jr. (PD) Karolinska Institutet. Medical Nobel Institute. NIH

SWITZERLAND

Basel

Walborsky, H. M. (PD) University of Basel. Department of Organic Chemistry. NIH